82-3.

MODERN CONCRETE PRACTICE

Waterproofing with CAL

SECURITY CEMENT & LIME CO.
HAGERSTOWN, MD.

New York Office
30 E. 42d St.
Tel. Vand. 8066

Chicago Office
327 S. LaSalle St.
Tel. Wabash 8246

A. I. A. File No. 3b.

Waterproofing With Cal

THE term "waterproofing" in reference to concrete work is commonly used to express two very different actions; namely, making concrete impermeable, and making it non-absorptive.

Impermeable concrete is concrete which will resist the flow of water through the mass. It is concrete of such close texture that there can be no direct passage. It must be free of honeycombing and large voids, and it must be as dense as possible. But truly impermeable concrete may be absorptive. Capillary attraction may draw water into the pores, gradually resulting in thorough absorption. Once this condition has developed, the evaporation of the absorbed moisture will become manifest on the inner surface. While the surface is apparently dry, it is always cold, and the confined atmosphere is damp and unhealthful.

Truly waterproof concrete is both impermeable and non-absorptive.

Cal has a combination of properties which makes it especially efficient in aiding in the manufacture of waterproof concrete.

This compound was originally discovered and marketed as an accelerator of the set and strength of Portland cement mixtures, mortar and concrete, and as a valuable aid to winter concreting. Improvements in manufacturing methods and progressive experimenting and investigating have disclosed new properties for development, and, always after exhaustive tests, the application of these properties has been offered to architects and engineers.

In both the laboratory and the practical field it has been proved that Cal has opportunities for usefulness even greater in summer than in winter. This is due to its remarkable action in curing concrete under air storage conditions which always present the danger of drying out and incomplete strengthening.

It has been proved that Cal makes a mixture fatter, easier flowing and more workable than does twice the same amount of hydrated lime.

These discoveries in themselves suggested impermeability and reduction of absorption, and thorough tests of these possibilities have confirmed our expectations.

In the manufacture of waterproof concrete nothing could be more important than making the mixture fill all parts of the forms smoothly, fitting snugly around all reinforcing bars, leaving no holes or voids. For this kind of concrete, workability is the first essential. The greater the workability, the more compact the finished structure.

When the concrete is placed it is essential that every particle of cement receive its full share of curing so that the interlocking crystals shall each be full size and as strong as possible. Cal has shown repeatedly its ability to draw from the cement its full utility, producing the strongest concrete that can possibly be made on the job.

But regardless of the excellence and the density of any plain concrete, there are always infinitesimal pores in the structure which invite the absorption of water. Prevention of this absorption can be accomplished only by filling these pores with material which will resist the gradual invasion of moisture. Cal both fills the pores and resists capillary attraction. Cal-concrete resists absorption.

On these qualities, proved by repeated tests, we base our claim that Cal has a combination of valuable properties unequalled by any integral waterproofing compound yet devised.

Cal waterproofs, and at the same time hastens the set and strength, gives safety in cold weather, cures in hot weather, and produces the most easily worked mixtures.*

In no type of work with Portland cement can the engineer overlook these properties, particularly when they can be combined at a cost of less than a dollar per cubic yard of 1:2:4 concrete.

** Three year storage tests under the most severe conditions possible have been conducted by Prof. John R. Lapham, of George Washington University to determine the effect of Cal on steel reinforcing bars. As a result of these tests we can state without reservation that Cal can not cause corrosion.*

Waterproofing Specifications

To specify Cal for waterproofing and conditioning concrete, stucco and mortar, merely insert in your standard specifications the words "Five pounds of dry Cal per bag of cement shall be added to the mixture at the same time the cement is added."

The makers of Cal cannot urge too strongly the value of long mixing and a low water-cement ratio. Regardless of specifications the responsibility for this control and its important bearing on the quality of the finished work will rest with the inspector on the job.

The Price of Cal

Less than ton lots	4c lb.
Ton lots, less than 5 tons	3c lb.
5 ton lots, less than 25 tons	2¾c lb.
25 ton car lots	2½c lb.

All prices F.O.B. factory, Berkeley, W. Va.
Subject to change without notice.

Eastern Freight Classification, LCL, R26; CL, 5th Class
Equivalent prices from cement dealers.

A LITTLE MORE COST—
A LOT BETTER JOB
Less carlots . . . . . 2¾c. lb.
Less than ton lots . 3 c. lb.
Carlot prices on request
All prices f. o. b. factory, Berkeley, West Virginia.
Cement dealers charge these prices plus

See Cal. pages 108–109 Sweet's Architectural Catalog, 18th Edition.